The impetus to do more with less has never been greater for hospitals—and radiologists are bearing the brunt in the form of an ever-increasing workload, leading to longer days and the growing potential for occupational disorders related to neck pain, fatigue and stress.

Considering all of the inherent stressors that negatively impact a radiologist’s ability to work comfortably, there is a dire need to improve the ergonomics of diagnostic imaging displays and the overall reading environment. Here’s how...
**Image quality**

Sharp image quality is of paramount importance in making an accurate diagnosis without eye strain. Display brightness, contrast, color/grayscale accuracy, luminance uniformity, and luminance stability are all crucial factors in achieving the best image possible on-screen. Form factor also has an impact: larger screens show larger images, revealing more subtle details.

**Illumination**

Tasked with reading dozens of studies per day in an environment with low levels of ambient light, radiologists often experience eye fatigue. Display brightness, as well as ambient light conditions, are critical to maintaining the radiologist’s visual acuity. A display that offers highly calibrated brightness (1,000 cd/m²) — as well as built-in features to control ambient light — ensures optimal reading conditions.

**Image processing**

The speed at which a radiologist can upload, size, position and move through a study for optimal viewing is critical to reading diagnostic images comfortably and efficiently. Image manipulations that are slow or uneven disrupt the radiologist’s focus. Displays with high-speed controllers that quickly load the images and keep them in focus (even when scrolling through a stack of images) present an uninterrupted workflow for the radiologist’s comfort and concentration.

**Display design**

Today’s typical multi-modality, multi-display setup requires radiologists to continuously shift their eyes to view all relevant images. However, the cones of the human eye which are responsible for the perception of detail and color are concentrated near the center of the eye, so images outside this focus area are less discernible. To present images within the optimal field of vision, the display must be the right size (33") with an aspect ratio of 3:2.

**Workstation design**

Another major cause of discomfort is neck strain, which results from frequent head movements when viewing images on multiple screens. Today, 85% of radiologists have three displays or more at their workstation!

A workstation setup that takes ergonomics as well as productivity into account consists of a single diagnostic display that supports viewing of every type of imaging modality — eliminating the need for multiple displays.

**Image manipulation**

Extensive panning and zooming, continuous rearranging of images, and physically taxing mouse clicks can lead to repetitive motion disorders like carpal tunnel syndrome. Presenting radiologists with life-size images — which require minimal panning and zooming and less windowing and leveling to get the best image for analysis — is key to an ergonomic viewing experience.

**Display tools**

Intuitive tools that streamline workflow present radiologists with a more comfortable workday. An easy-to-control touchpad for fast interaction, a film clip that allows comparison of digital studies with film-based priors, keyboard and wall lights, and several workflow tools designed to automate routine tasks work together to make the reading experience more efficient.

**Beyond the pacs workstation**

Needless to say, there’s more to radiology reading room ergonomics than meets the eye. When investing in the latest and greatest display technology, also remember that other requirements need to be met – like sound masking to minimize noise distraction, environmental factors (e.g. temperature control, the color of the walls...), and properly adjusted furniture — in order to provide radiologists with the ultimate reading experience.